

TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT CONTAMINATION FIXATIVE FOR 233-S

Identification No.: RL-DD032

Date: August 2001

Program: Decontamination and Decommissioning

OPS Office/Site: Richland Operations Office/Hanford Site

PBS No.: RL-CP01

Waste Stream: Fixatives for LLW debris (ER-05, risk = 4) and TRU debris (T3-ER, risk = 5)

TSD Title: N/A

Waste Management Unit (if applicable): N/A

Facility: 233-S

Priority Rating: This entry addresses the Accelerated Cleanup: Paths to Closure (ACPC)
Priority:

- ☐ 1. Critical to the success of the ACPC
- ☒ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
- ☐ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Contamination Fixative for 233-S.

Need/Opportunity Category: *Technology opportunity* - the project desires an alternative to the current or planned baseline technology/process (i.e., a baseline exists but can be improved).

Need Description: A fixative is needed to capture airborne and removable contamination and affix contamination on facility surfaces and within piping and vessels.

Schedule Requirements:

Earliest Date Required: 10/1/2001

Latest Date Required: 12/31/2004

Problem Description: Areas of airborne and removable contamination must be contained; e.g., affix contamination on surfaces and within piping and vessels. The baseline technology is able to affix loose and airborne contamination to surfaces. However, the final surface (water) is wet and may result in the transfer of contamination from surfaces to personnel protective equipment. Also, the method will not work if there is unfavorable airflow.

Benefit to the Project Baseline of Filling Need: An improved method could expedite clean-up activities with increased safety and lower costs.

Functional Performance Requirements: A method is needed to affix loose and airborne contamination to surfaces. The method should be easy to apply, have some indicator for wet/dry,

should not be wet or tacky upon curing (if applicable), be able to coat grating, and be able to coat the interior of 1.0 inch to 7.0 inch OD pipes. The method should be applicable with some airflow in contained areas. The method should also be useable on the exterior of piping and vessels in a confined area. The method should not offgas flammable/explosive gases in quantities sufficient to become a hazard.

WBS No.

1.4.03.3.1.02.06.03.10.42.01

TIP No.

N/A

Relevant PBS Milestone: PBS-MC-031

Justification for Need:

Technical: The baseline method leaves the surface wet and may result in the transfer of contamination from surfaces to personnel protective equipment. Also, the method will not work if there is unfavorable airflow.

Regulatory: There are no specific regulatory drivers for this need.

Environmental Safety & Health: An improved method could reduce worker exposure and the spread of contamination.

Cost Savings Potential (Mortgage Reduction): Rough order of magnitude (ROM) life cycle cost (LCC) savings of \$100K. LCC savings estimate is based on the assumption that improved fixatives would reduce the FY2002 and FY2003 costs by 1%. The FY2002/2003 Project cost of \$10.7M was assumed based on DOR/RL-97-44, Volume 5, Revision3, September 2000. Personnel time would be saved if only one coating is required to affix airborne and loose contamination.

Cultural/Stakeholder Concerns: An improved method could expedite clean-up activities with increased safety and lower costs.

Other: None identified.

Current Baseline Technology: The current methods include a latex-based fixative and the use of continuous water misting on piping and vessels exteriors and on walls and floors. Water misting should keep airborne contamination to a minimum, but will allow for easy pick up and spread of contamination as loose contamination will not be contained. There is no baseline fixative for piping interiors.

End User: Environmental Restoration Project

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